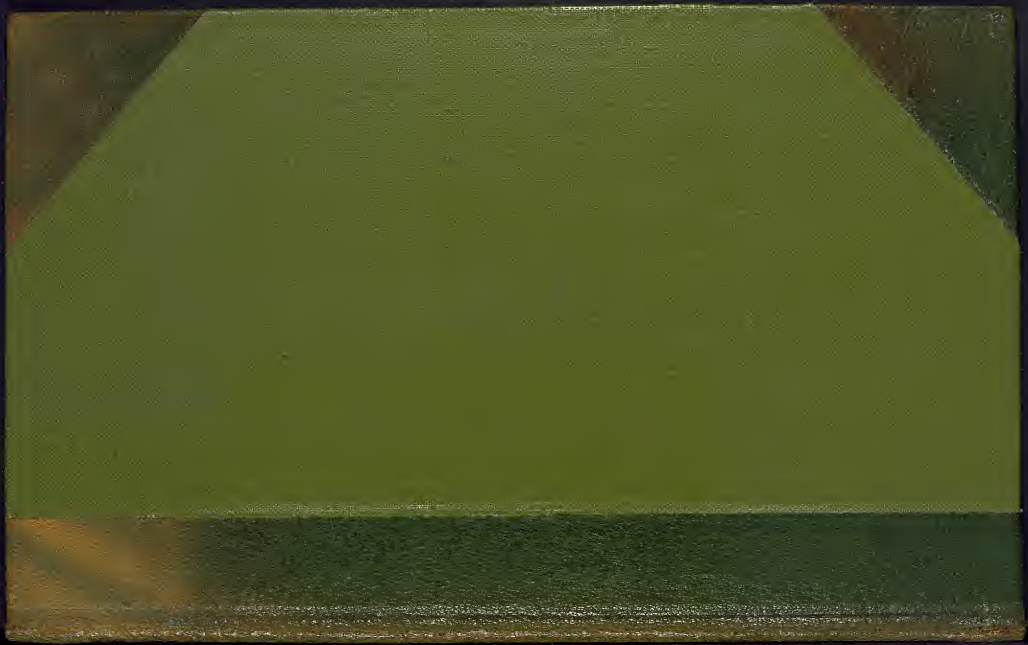

PRACTICAL

OBSERVATIONS

ON THE

BRITISH GRASSES,

ESPECIALLY

SUCH AS ARE BEST ADAPTED

TO THE

LAYING DOWN OR IMPROVING

OF

MEADOWS AND PASTURES:

TO WHICH IS ADDED

AN ENUMERATION

OF

THE BRITISH GRASSES.

THE FOURTH EDITION,
WITH ADDITIONS.

BY WILLIAM CURTIS,
AUTHOR OF THE FLORA LONDINENSIS.

"FIAT EXPERIMENTUM."

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1804.

PRACTICAL

OBSERVATIONS

ON THE

BRITISH GRASSES.

OBSERVATIONS,

&c. &c.

THAT much of our meadow and pasture land may be rendered infinitely more valuable than it is at present, by the introduction of some of our best grasses, is an opinion which has long prevailed among many of the more enlightened agriculturists of the present age: and, while some of these have endeavoured to excite the husbandman to collect and cultivate seeds of this sort, by writings fraught with the soundest reasoning*, others

* "It is wonderful to see how long mankind has neglected "to make a proper advantage of plants of such importance, "and which in almost every country are the chief food of "cattle. The farmer, for want of distinguishing and selecting "grasses for seed, fills his pastures either with weeds, or bad "or improper grasses; when, by making a right choice, after "some trials, he might be sure of the best grass, and in the "greatest abundance that his land admits of. At present, if a "farmer wants to lay down his land to grass, what does he do? "He either takes his seeds indiscriminately from his own foul "hay-rick, or sends to his next neighbour for a supply. By "this means (besides a certain mixture of all sorts of rubbish, "which must necessarily happen), if he chances to have a "large proportion of good seeds, it is not unlikely but that "what he intends for dry land may come from moist, where "it grew naturally, and the contrary. This is such a slovenly

others have attempted to attract him by the offers of

" method of proceeding, as one would think could not possi-
" bly prevail universally; yet this is the case as to all grasses,
" except the Darnel-Grass, and what is known in some few
" counties by the name of the Suffolk-Grass (Poa annua);
" and this latter instance is owing, I believe, more to the soil
" than any care of the husbandman. Now, would the farmer
" be at the pains of separating once in his life, half a pint, or
" a pint, of the different kinds of grass seeds, and take care
" to sow them separately, in a very little time he would have
" wherewithal to stock his farm properly, according to the
" nature of each soil, and might at the same time spread these
" seeds separately over the nation by supplying the seed-shops.
" The number of grasses, fit for the farmer, is, I believe,
" small; perhaps half a dozen, or half a score, are all he need
" to cultivate: and how small the trouble would be of such
" a task, and how great the benefit, must be obvious to every
" one at first sight. Would not any one be looked on as wild,
" who should sow *wheat*, *barley*, *oats*, *rye*, *peas*, *beans*, *vetches*,
" *buck-wheat*, *turnips*, and weeds of all sorts together? Yet
" how is it much less absurd to do what is equivalent in rela-
" tion to grasses?—(STILLINGFLEET's *Misc. Tracts*, *edit.* 2,
" *p.* 365.)

" Meadow and pasture land is oftener neglected than
" ploughed ground, notwithstanding it generally admits of a
" much greater proportion of improvement. The best grasses
" cannot be collected at too great an expence; for, I have
" seen a small spot of land, in the middle of a large piece,
" which was laid down twelve or fourteen years since, by
" Mr. STILLINGFLEET, upon the estate of Mr. PRICE, of
" Foxley, in Herefordshire, with some choice seeds, at the
" same time when the remainder of the field was laid down
" with common seeds; and this spot is considerably better

" than

of well-directed premiums*; but, hitherto, neither the writings of the one, however convincing, nor the premiums of the other, however alluring, have been productive of the desired effect. Ray-Grass still continues to be the only grass† whose seeds can be purchased for the purpose of laying down meadow and pasture land; and how inadequate that grass is, for such a purpose, is known to every intelligent farmer. Why, indeed, the *Lolium perenne*‡ should originally have been

" than the rest: it not only appeared so to my judgment, but " was allowed to be so by Mr. PAICE's bailiff, who was well " acquainted with its produce. From Mr. STILLINGFLEET's " experiments, and my own observations, I am clearly of " opinion, that any person who has land cultivated for grass, " may improve it, by this method of laying it down, to a much " greater degree than he can in the common way."—(KENT's *Hint's to Gentlemen of Landed Property.*)

See also ANDERSON's *Essays on Agricultural and Rural Affairs*, 2 *vols.* 8*vo.* in which this subject, among a variety of others, is very copiously and ably handled; and, on the perusal of which, one cannot but seriously lament, that many of the useful hints of the ingenious author are rendered abortive from his want of botanical information.

* Society for the Encouragement of Manufactures, Arts, and Commerce.

† We have indeed been informed that the seeds of the *Holcus Lanatus*, or *Meadow Soft-Grass*, gathered in great quantities in some parts of Yorkshire, is sold in several of the London shops under the name of Yorkshire-Grass.

‡ Ray or Rye-Grass.

 made

made use of, in preference to all the other grasses, cannot, perhaps, be satisfactorily accounted for: most probably it owes its introduction to accident, or to its being a common grass whose seeds were easily collected, rather than to its being preferred from any investigation of its merits compared with the others; however this may be, there appears to be no reason for excluding the others—for it would appear exceedingly improbable, that, of upwards of a hundred grasses* growing wild in this country, the Author of Nature should have created one only as suitable to be cultivated for pasturage or fodder.

Taking it for granted then, that there are other grasses, superior in many respects to the Ray-Grass, this question naturally arises—How comes it that they have not found their way into general use? To this it may be answered, improvements in any science, but more especially in agriculture, are slow in their advances; and, perhaps, no class of men adheres more pertinaciously to old prejudices than the farmer.

The difficulty of distinguishing the grasses from each other, has, no doubt, proved one grand obstacle; many of these plants are so much alike, that the most discerning botanist is often at a loss to know some of them apart; if

* The word grasses is here understood in its strict sense.

so, how easily may the husbandman be deterred from the arduous task.

There is another cause which may have operated against their introduction: grasses, as well as other plants, have been frequently recommended from a partial and limited observation of them, by persons who neither knew them well as botanists or agriculturists, or who have recommended them, merely to gain by the credulity of the public.

But, perhaps, the chief reason has been, that persons who might be expected to make the improvements, have not had the means fairly put into their hands to make the experiment. Whether the method we have adopted on this occasion, may be more successful than those of our predecessors, must be determined by the event. From the numerous applications made to me, by a variety of gentlemen, for grass seeds, it has appeared incumbent on me to do something which might gratify them, and render the public an essential service; I wish, at least, to put it in their power to decide on a matter which has been long agitated, and from which I am far from being the only one that entertains the most sanguine hopes of its proving a great national advantage.

The grasses recommended will, I am confident, do all that our natural grasses can do: they

they are six of those which constitute the bulk of our best pastures; most of them are early, all of them are productive, and they are adapted to such soils and situations, as are proper for meadows and pastures.

But let no one expect them to perform wonders; for, after all, they are but grasses, and, as such, are liable to produce great or small crops, according to particular seasons, or to the fertility or barrenness of the soil on which they are sown.

OBSERVATIONS

ON THE GRASSES RECOMMENDED,

THE SEEDS OF WHICH ARE CONTAINED IN THE PACKET.

I. ANTHOXANTHUM ODORATUM.

Sweet-scented Vernal-Grass.—Tab. 1.

Next to the *Cynosurus cæruleus*, or *blue Dogs-Tail Grass*, this, of all our English grasses, comes first into blossom; it is therefore valuable as an early grass; it is valuable also for its readiness to grow in all kinds of soil and situation, being found in bogs, in woods (especially such as

Plate 1

Pub. by S Curtis, Florist Walworth May 31. 1804

Plate 2

Pub by T. Curtis, Florist Walworth May 31. 1804

as are of low growth, or have had the underwood cut down), in rich meadows, and in dry pastures; in point of crop it is not so productive as some, yet more so than others; cattle are fond of it, and it is well known to be the only English grass which is odoriferous; the agreeable scent of new-made hay arises entirely from this grass, hence its name of *odoratum*, or *sweet-scented*; the green leaves, when bruised, readily impart this perfume to the fingers, by which means the foliage may at all times be known; and persons not deeply skilled in botany, may distinguish it when in blossom, by its having only two threads or stamina to each flower.

Of the several grasses, here recommended, it is the least productive in point of seed. In certain situations, and more especially in dry seasons, the leaves of this grass are apt to be blighted, from a disease which changes them to an orange hue, and which has proved highly injurious to the plants which we have cultivated.

II. ALOPECURUS PRATENSIS.

Meadow Fox-Tail Grass.—Tab. 2.

Produces its spike almost, and in some situations to the full, as early as the *Anthoxanthum*; hence it is equally valuable as an early grass; and,

and, as it is much larger, and quicker in its growth, it is consequently much more productive. It shoots very rapidly after mowing, producing a very plentiful aftermath; and, where the land is rich, and two crops are not thought too much for it to bear, of all our English grasses this appears to be the best adapted for such a purpose, and ought to form a principal part of the crop: its foliage may appear coarse to some, but it should be remembered, that no grass can be productive that is not in some degree coarse; if mown early, just as it comes into bloom, though the leaves are large, the hay will not be coarse; in general, the great advantage arising from the earliness of this and the preceding grass, is entirely lost at a distance from London, where haymaking commences late, and where the husbandman seems to wait for a crop of general indiscriminate herbage, rather than of grass.

The *Meadow Fox-Tail* is more confined as to its place of growth, growing naturally in a moist soil only; hence it is best adapted to improve very wet ground that may be drained of its superfluous moisture, or to form or meliorate meadows that have a moist bottom, and are not apt to be burnt up in dry summers.

Its seeds are easily collected; but a great number of them, in certain seasons, are destroyed by a very minute orange-coloured larva or maggot,

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got, which feeds on the embryo of the seed, and most probably produces some small species of *Musca*.

This grass is distinguished, in some degree, by the largeness of its foliage, and by its producing a soft spike on a long stalk early in May. The *Meadow Cats-Tail Grass*, or *Timothy Grass*, produces a spike somewhat similar, but rougher to the touch, and much later in the summer.

III. POA PRATENSIS.

Smooth-Stalked Meadow Grass.—Tab. 3.

The foliage of this grass begins to shoot, and to assume a beautiful verdure very early in the spring, but its flowering stems are not produced so soon, by a week at least, as those of the *Alopecurus*; this trifling difference, however, in point of earliness of flowering, does not prevent it from ranking, very properly, with the two preceding; and, where early grassy pasturage is a desideratum, we are of opinion it cannot better be obtained than by a combination of these three; if crop be at the same time an object, the *Meadow Fox-Tail Grass* should predominate.

This grass rather affects a dry than a moist situation, and hence it keeps its verdure in long-continued dry weather better than most others,

but it will thrive in either; will grow on the top of a dry wall, but much more luxuriantly in a rich meadow; it is to be observed, however, that it has a root which creeps, like the *Couch-Grass (Triticum Repens)*, and is almost as difficult to extirpate; it ought, therefore, to be cautiously introduced, where the pasturage is not intended to be permanent.

Of the trifling improvements which we flatter ourselves to have occasionally made, in some of the specific characters of the English plants, none have given us more satisfaction than those which relate to this species and the *Poa trivialis*, two grasses so very similar, as scarcely to be distinguished, even by the most discerning eye, at a little distance, and very obscurely characterised by LINNÆUS; but which, by attending to two characters only in each grass, may now, in a moment, be distinguished with the utmost facility and certainty.

The *Poa pratensis* has a smooth stalk, the *trivialis* a rough one, perceptible when drawn betwixt the thumb and finger, and which arises from little sharp points, visible when the sheath of the leaf, which covers the stalk, is magnified, *vide Tab.* 4, *fig.* 1.; the *trivialis* has a long pointed membrane, at the base of the leaf, *fig.* 2.; the *pratensis*, a short blunt one, *Tab.* 3, *fig.* 2. These grasses differ specifically in a variety of other particulars,

not

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not necessary here to dwell on, and for which such as wish to be more particularly informed of, may consult the *Flora Londinensis*. We shall just mention one striking character of this grass; it never throws up any flowering stems or bents, but once in a season (May), while many other grasses, especially the *Ray-Grass* and *Dwarf-Meadow*, are putting them forth perpetually; from this peculiarity, joined to its hardiness and verdure, it would appear to be a good grass for lawns or grass plats.

In dry soils, we have found the crop, from this grass, yearly to diminish in quantity, and to be at last very trifling, when its roots have matted together and exhausted the ground, which they seem very apt to do; in moist meadows this effect has not been so observable: upon the whole, this grass has rather sunk than risen in our estimation.

IV. POA TRIVIALIS.

Rough-Stalked Meadow Grass.—Tab. 4.

Similar as this grass and the preceding are, in appearance, particularly in their mode of flowering, they differ very essentially in their qualities. While the *Smooth-Stalked Meadow Grass* is found chiefly in dry pastures, the *Rough-Stalked* princi-

 pally

pally occurs in moist meadows, or on the edges of wet ditches; it loves moisture, and a situation that is sheltered; hence, though there are few grasses more productive, or better adapted for hay or pasturage, it is a tender grass, and liable to be injured by severe cold, or excessive drought: in very wet ground, near the Thames, we have observed it grow very tall, while in poor land we have, on the contrary, seen it altogether as diminutive; it is, perhaps, no small recommendation to it, that it is a principal grass in that uncommonly productive meadow, near Salisbury, mentioned by STILLINGFLEET, and more particularly described in the Memoirs of the Bath Agricultural Society, *vol.* 1. *p.* 94. Vide *Append.*

We may remark, that the seeds of the *Poa trivialis*, and *Poa pratensis*, but more especially those of the former, are apt to be entangled, and adhere to each other, as if cobwebs had been intermixed with them, which makes it difficult to disperse them evenly in sowing.

V. FESTUCA PRATENSIS.

Meadow Fescue-Grass.—Tab. 5.

Of the several grasses here recommended, this comes the nearest, in its appearance, to the Ray-Grass, to which, however, it seems to us to be, in

Plate 5

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in many respects, greatly superior, at least for the purpose of forming or improving meadows; it is larger, and more productive of foliage; it is strictly perennial, is very hardy, and will thrive, not only in very wet, but also in dry ground; we have found it growing in all situations, from the sand-pits at Charlton, to the osier-grounds at Battersea; and it abounds in the very best meadows about London; in short, we know of no grass more likely to supply the deficiencies complained of in Ray-Grass; and yet it has not, that we know of, been particularly recommended. One quality it has, which bids fair to introduce it quickly into more general use; it produces more seeds than any of the others, which are easily gathered, and readily grow. In one respect it is inferior to the three first grasses—it does not produce its flowering stems earlier than about the middle of June, a fortnight or three weeks later than the *Meadow Fox-Tail Grass*; yet it cannot be considered as a late grass, as most of the *Agrostis* tribe, and the *Meadow Cats-Tail Grass (Phleum pratense)*, flower at least three weeks later. It must be carefully distinguished from the *Festuca elatior*, or *Tall Fescue Grass*, which is very similar, but much coarser.

VI. CYNOSURUS CRISTATUS.

Crested Dogs-Tail Grass.—Tab. 6.

It is chiefly from the great character which this grass bears, as a favourite and wholesome food for sheep, and from its being found in our soundest and best pastures, that it is here recommended. It grows naturally in dry situations, and will not thrive in meadows that are very wet. It flowers about the same time as the *Meadow Fescue-Grass*, and is not very productive of foliage: as its flowering stems and heads are always left untouched by cattle, its seeds may easily be collected where the pasturage is fed.

Additional Remark.—Finding that this grass produces but little foliage, that its stems are wiry, and constantly refused by cattle; that, from its roots being fibrous, and penetrating to no great depth, it becomes, in dry summers, little better than an annual; we are induced to think less favourably of its intrinsic merit, and to consider it as greatly inferior to the other five.

OF THE ABOVE SIX GRASSES IT WILL APPEAR, THAT THE

Meadow Fox-Tail, and *Rough-Stalked Meadow Grass*, are fittest for moist land.

Meadow

Plate. 6.

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Meadow Fescue, or *Sweet-Scented Vernal*, is fittest for land either moist, or moderately dry.

Smooth-Stalked Meadow Grass, and *Crested Dogs-Tail*, are fittest for dry pasture.

In the more southern parts of this kingdom we may in vain expect to clothe dry soils with the constant verdure of grasses; they will not stand the drought of hot parching summers: in such seasons, it is only plants which send down roots to a great depth that can be expected to look green or be productive, as *Lotus corniculatus*, *Medicago falcata*, &c.

THE ORDER OF THEIR FLOWERING.

1. Sweet-Scented Vernal.
2. Meadow Fox-Tail.
3. Smooth-Stalked Meadow.
4. Rough-Stalked Meadow.
5. Meadow Fescue.
6. Crested Dogs-Tail.

We could easily add many more grasses to this list, and those too which, perhaps, might be highly deserving of it; but we have our doubts whether, by recommending more, we might not increase the difficulty of introducing grass seeds, without any adequate advantage.

We shall, however, just take the liberty of making a few practical remarks on such others of

of the English grasses, as, from twenty years culture and observation, appear to us deserving particular notice.

AGROSTIS CAPILLARIS.

Fine Bent-Grass.

A very common grass on all dry heaths, in pastures, and by road sides, distinguished by its very finely divaricated panicle. A principal, and to us an insuperable objection to this tribe of plants, is the lateness of their flowering, scarcely any of them coming into bloom till July; if any of them deserve culture, it is this species, as it is one of the earliest, and has fine and productive foliage.

This is the grass which, in many parts of the kingdom, forms the turf of our extensive pastures, downs, and sheep-walks; we have frequently observed whole acres covered nearly with it alone: for grass-plats and lawns, it seems likely to be the best of all our English species, being of ready growth, bearing the scythe well, producing fine foliage, and resisting drought better than most; the foliage of *Agrostis fascicularis* is still finer, and would probably succeed better, for the same purposes, in moist soils.

AGROSTIS PALUSTRIS.

Marsh Bent-Grass.

As the *Agrostis capillaris* is very common in dry pastures, this abounds in wet meadows and marshes, where it frequently grows to a great height; its foliage, like that of the other, is fine, but it is liable to the same objection of lateness of flowering.

AIRA AQUATICA,

Water Hair-Grass,

Is, in point of sweetness, superior to all our other British grasses, and equal to any foreign one we are acquainted with, but not cultivatable, as it is entirely an aquatic.

ALOPECURUS GENICULATUS,

Flote Fox-Tail Grass,

Like the *Festuca fluitans*, agreeable to cattle, and productive, but affects situations too wet, in our opinion, for meadows.

AVENA ELATIOR,

Tall Oat-Grass,

Is more frequently found on the confines of meadows, in hedge-rows, and hedges, than in meadows themselves, in which, however, it is

sometimes found abundantly; it is early, very productive, and produces a very plentiful aftermath; in excellence it comes near to the *Alopecurus pratensis*, for which it may prove no bad substitute. Is cultivated abroad, *vid. Annals of Agricult. v. xii. p.* 441. There is a variety of it with knobby roots, a troublesome weed in cornfields in some parts of the kingdom.

AVENA FLAVESCENS,

Yellow Oat-Grass,

Affects dry soils, is rather early, and tolerably productive; bids fair to make good sheep pasture.

AVENA PUBESCENS,

Rough Oat-Grass,

Is tolerably early, hardy, productive, and of good verdure, but its foliage is uncommonly bitter.

BRIZA MEDIA,

Common Quaking-Grass,

Affects chalky soils, but is not confined to them; is moderately productive, and likely to form good sheep pasture.

BROMUS

BROMUS MOLLIS.

Soft Brome-Grass.

What shall we say of this grass? concerning which such various opinions are entertained; a grass which predominates in most of our meadows about London, in the spring, and which, if it were cut on its first coming into ear, would form the principal crop, and might, probably, make no bad hay; but, as, at this period, the general herbage is not considered as sufficiently forward, it is suffered to ripen, and shed its seeds, before the meadow or pasture is mown, and thus is lost, or becomes of little value; in such meadows and pastures it is yearly renewed by its seed, for it is an undoubted annual. As an early grass, it might probably be cultivated to advantage, in the manner of rye; at present we cannot but consider it as a weed, usurping the place, and hindering the growth, of better herbage.

BROMUS ERECTUS,

Upright Brome-Grass,

Grows wild in chalky pastures, to which, as far as we have observed, it is altogether confined, and constitutes a considerable part of the grassy herbage; we have been induced to think

less favourably of it, from seeing it grow wild, than when cultivated in a garden; it is, however, deserving of trial, especially as it is early.

CYNOSURUS CŒRULEUS,

Blue Dogs-Tail Grass,

Earliest of all the British grasses, flowering a fortnight sooner than the *Sweet-Scented Vernal*, grows naturally on the tops of the highest limestone rocks in the northern parts of Great Britain; not very productive, yet may, perhaps, answer in certain situations, especially as a grass for sheep; bears the drought of summer remarkably well.

DACTYLIS GLOMERATUS.

Rough Cocks-Foot Grass.

A rough coarse grass, but extremely hardy and productive, common in orchards and meadows, and rather early.

FESTUCA OVINA.

Sheeps Fescue-Grass.

From observations made on this grass, where it has grown wild, and from cultivating it in a moist soil, the reverse of its natural one, we are induced to think differently of it from most writers.

LINNÆUS.

LINNÆUS, if we are not mistaken, was the first who considered it in a favourable point of view: in his *Flora Suecica*, he thus speaks of it: "This grass is a principal food of sheep, who "have no relish for such hills and heaths as are "without it;" hence he calls it *ovina*. GMELIN *Fl. Sibir.* says, "That the Tartars choose to fix "during the summer in those places where there "is the greatest plenty of this grass, because it "affords a most wholesome nourishment to all "kinds of cattle, but chiefly sheep."

It is possible, that, in the more elevated parts of northern Europe, this grass may differ somewhat in its appearance and produce, from what it does with us: in the environs of London it grows spontaneously, on dry elevated heaths and commons; in such situations its produce is extremely trifling, its foliage hard and wiry, and its appearance, in dry summers, unpleasantly brown. In a rich moist soil the foliage retains its verdure, and becomes much longer, but still, being in its nature a small plant, it cannot be productive—consequently has no pretensions to be considered as fit for a hay grass; it is, in fact, to the *Alopecurus pratensis*, what the *Daisy* is to the *Cichorium Intybus*. In the cultivation of plants, it is well to bear the old maxim in mind, *nature will prevail*. If we force a plant on a soil or situation foreign to that in which it is *constantly* found,

found, we deceive ourselves; were the *Festuca ovina* to be sown in a rich moist soil, the grasses, and other plants, natural to such a soil and situation, would quickly overpower it, and, in the space of a year or two, scarcely a blade of it would be discernible; or were we, for the sake of our sheep (taking it for granted that they are uncommonly attached to it, the reverse of which we have heard asserted by men of observation), to plough up our elevated heaths and downs, and sow them with this grass, the sheep would starve on them in dry summers. Where then is the boasted value of this grass? Mr. ANDERSON, it is true, has bestowed ten pages on its merits; but he surely errs *(humanum est errare)*, when, after describing its leaves as little bigger than horse hairs, or swine's bristles, and seldom exceeding six or seven inches in length, he says, "That it is capable of affording an immense "quantity of hay, promises to be one of the "most valuable grasses our country produces, "and to make a most valuable acquisition to "the farmer."

It appears to us applicable only to the purpose of making a fine-leaved grass-plat, that shall require little or no mowing. For this purpose it must be sown about the middle of August, in an open, not too dry, situation, broadcast, and that thickly, on ground very nicely prepared

prepared and levelled; when it has once got possession of the soil, it will form so thick a turf, as to suffer few intruding weeds, and may be kept in order with little trouble.

FESTUCA DURIUSCULA,

Hard Fescue Grass,

Affects such situations as the *Smooth-Stalked Meadow-Grass,* and *Sheeps Fescue,* all three being not unfrequently found on walls; it is common also on our downs, and in our meadows and pastures; according to situation, it varies much in size and breadth of leaf, as well as colour of its panicle, but in all situations is very distinct from the *ovina.*

It is early and productive, its foliage is fine, and of a beautiful green; hence we have thought it was of all grasses the fittest for a grass-plat, or bowling-green: but we have found, that though it thrives very much, when first sown or planted, it is apt to become thin, and almost disappear, after a while; from its natural place of growth, it appears to be a proper grass to unite with those intended for sheep pasture.

FESTUCA ELATIOR.

Tall Fescue-Grass.

Very similar to the *Festuca pratensis,* yet specifically different; found naturally in marshes, in which

which it grows to a great height; is hardy, and very productive, but, we apprehend, too harsh and coarse for hay, yet may, perhaps, be a good grass for soils, which cannot be drained of their too great moisture, are over-run with *Meadow-Sweet*, and such like weeds, or which are apt to be overflown.

The seeds of this plant, when cultivated, are not fertile, hence it can only be introduced by parting its roots, and planting them out; in this there would be no great difficulty, provided it were likely to answer the expence, which we are strongly of opinion it would, in certain cases; indeed we have often thought that meadows would be best formed by planting out the roots of grasses, and other plants, in a regular manner; and, however singular such a practice may appear at present, it will probably be adopted at some future period: this great advantage would attend it, noxious weeds might be more easily kept down; until the grasses, and other plants, had established themselves.

FESTUCA LOLIACEA.

Darnel Fescue-Grass.

Found sparingly in good meadows near London, extremely similar to *Lolium perenne* in appearance, but taller and more productive; its foliage is harsh, and, like the *Lolium perenne*, it runs

runs too much to stalk: it is undoubtedly a distinct species, very hardy, tolerably early, of very rapid increase, yet not by creeping roots; more deserving of trial than many which have been pompously recommended.

The seeds of this grass being in the same predicament as those of *Festuca elatior*, the plant can only be propagated in the same way.—A more particular account of *Festuca loliacea, elatior*, and *pratensis*, may be seen in the *Flor. Lond. fasc.* 6.

FESTUCA CAMBRICA.

Welch Fescue-Grass.

Somewhat like the *Festuca duriuscula* in appearance and qualities. I never could obtain any perfect seed from it at my gardens, Lambeth-Marsh, or Brompton.

FESTUCA FLUITANS.

Flote Fescue-Grass.

Vid. ALOPECURUS GENICULATUS.

HORDEUM MURINUM.

Wall Barley-Grass. Squirrel-Tail Grass.

Common at the foot of walls, and by the sides of paths, seldom seen in meadows and pastures; yet, in some parts of the kingdom, is found amongst the hay, in sufficient quantity to

prove highly injurious to horses—the awns, or beards of the ears, sticking into their mouths, and making them so sore that they are unable to eat—ought therefore to be known, that it may be avoided.

Our information respecting the *Squirrel-Tail Grass*, though from highly respectable authority, we have some reason to think may be incorrect as to the species;—shall leave it to some botanist, who may visit the Isle of Thanet *, to determine, whether it be the *Hordeum murinum*, *pratense*, or *maritimum*.

HORDEUM PRATENSE.

Meadow Barley-Grass.

A taller and more delicate grass than the preceding, found generally in good meadows, and sometimes forming a great part of the crop; yet, as it is neither so early, nor so productive, as many others, and may possibly have the same bad quality as the foregoing, must be cautiously introduced.

* Where the evil occasioned by this grass is of so serious a nature, that we have known gentlemen, going to reside there for a short time, have their hay sent them from London.

HOLCUS LANATUS.

Meadow Soft-Grass.

A very common grass in all meadows and pastures; also in waste grounds, and woods newly cut down; is hardy and productive of foliage, flowers a month later than the *Anthoxanthum*; when its red panicle appears, the farmers consider their grass fit for mowing. Its foliage is soft and woolly; if not disliked by cattle, on that account, may rank with some of the best grasses; if more early, would be more valuable.

HOLCUS MOLLIS.

Creeping Soft-Grass.

We are induced to think better of this grass, than when we figured and described it in the 54th No. of the *Flora Londinensis*, having found that it will grow well in a sandy soil, and bear the drought of summer better than most others. Capt. DORSET is of opinion, that it may be even cultivated advantageously in barren sandy soils.

LOLIUM PERENNE.

Ray or Rye-Grass.

Though the *Lolium perenne* may not possess all that is desirable in a grass, it is not therefore to

be considered as of no value, and indiscriminately rejected. The complaint so generally urged against it, of its producing little more than stalks or bents, will be only found valid when the plant grows in upland pasture and dry situations: in rich moist meadows its foliage is more abundant, and it seems to be the general opinion of agriculturists, that it is highly acceptable and nutritious to cattle. As its foliage is of rapid growth, and its flowering stems are continually shooting forth, it should never be sown to form a lawn, grass-plat, or bowling-green.

The produce of some turfs sent me by Mr. LOVEDEN, and cut out of his best meadows, consisted chiefly of *Lolium perenne:* much yet remains to be known of this most common grass, which appears to vary, *ad infinitum*, even in its wild state; we have seen a variety of it with double flowers, and one with awns, both of which are very uncommon: the spike, where the plant grows luxuriantly, is sometimes found branched; seeds of this variety do not constantly produce the same: the battledoor variety is very common; in some pastures, and such as were not very moist, we have seen its stalks viviparous towards autumn; in some situations again we have seen it produce foliage chiefly, in others little besides flowering stems, and to prove almost annual.

As we have, in many instances, improved varieties

rieties of plants, for agricultural, and other purposes, so we think it highly probable that such might be obtained from this grass.

POA AQUATICA.

Water, or Reed Meadow-Grass.

Like the *Flote Fescue*, is properly an aquatic, growing naturally in standing waters, or land that is periodically overflown; in flat countries, which do not admit of being sufficiently drained, it is almost the only grass for hay and pasturage.

POA ANNUA.

Dwarf Meadow-Grass.

A grass common to every quarter of the globe; when cold does not prevent it, perpetually flowering and seeding, and that most rapidly; growing in almost any soil and situation, varying in size, but never acquiring any great height; its foliage tender and grateful to cattle, but liable to be killed by winter's frost, and summer's drought; the first to cover earth made bare, from any cause, hence frequent on the edges of paths, where its seeds being scattered, quickly vegetate, and where it is not overpowered by more luxuriant herbage; not flourishing from being trodden on, as Mr. STILLINGFLEET has supposed.

PHALARIS

PHALARIS ARUNDINACEA.

Reed Canary-Grass.

The foliage of this grass is coarse, but very productive, and there is a sweetness in it which inclines one to think that it would be very grateful to cattle: where crop, or great quantity of fodder is the object, we would recommend the planting this grass, with *Festuca elatior*, in wet meadow-ground.

PHLEUM PRATENSE. Timothy grass

Meadow Cats-Tail Grass,

Affects wet situations, is very productive, but coarse and late; has no excellence, that we are acquainted with, which the *Alopecurus pratensis* does not possess in an equal degree.

TRITICUM REPENS.

Creeping Wheat-Grass, vulgo *Couch Grass.*

Well known to farmers and gardeners as a most troublesome weed; how far its early foliage may recommend it for pasturage, we shall not presume to determine.

DIRECTIONS

FOR SOWING THE GRASS SEEDS

CONTAINED IN THE PACKET.

If a piece of ground can be had, that is neither very moist nor very dry, it will answer for all the seeds; they may then be sown on one spot: but if such a piece cannot be obtained, they must be sown on separate spots, according to their respective qualities, no matter whether in a garden, a nursery, or a field, provided it be well secured and clean. Dig up the ground, level, and rake it; then sow each kind of seed thinly in a separate row, each row nine to twelve inches apart, and cover them over lightly with the earth; the latter end of August, or beginning of September, will be the most proper time for this business. If the weather be not uncommonly dry, the seeds will quickly vegetate, and the only attention they will require, will be to be carefully weeded, in about a fortnight from their coming up; such of the plants as grow thickly together may be thinned, and those which are taken up transplanted, so as to make more rows of the same grass.

If the winter should be very severe, though natives, as seedlings, they may receive injury; there-

therefore it will not be amiss to protect them with mats, fern, or by some other contrivance.

Advantage should be taken of the first dry weather in the spring, to roll or tread them down, in order to fasten their roots in the earth, which the frost generally loosens; care must still be taken to keep them perfectly clear from weeds. As the spring advances, many of them will throw up their flowering stems, and some of them will continue to do so all the summer. As the seed in each spike or panicle ripens, it must be very carefully gathered, and sown in the autumn, at which time the roots of the original plants, which will now bear separating, should be divided and transplanted, so as to form more rows; the roots of the *Smooth-Stalked Meadow-Grass*, in particular, creeping like *Couch-Grass*, may readily be increased in this way; and thus, by degrees, a large plantation of these grasses may be formed, and much seed collected.

While the seeds are thus increasing, the piece or pieces of ground which are intended to be laid down, should be got in order. If very foul, perhaps the best practice (if pasture land) will be, to pare off the sward, and burn it on the ground; or, if this practice should not be thought advisable, it will be proper to plough up the ground, and harrow it repeatedly, burning the roots of *Couch-Grass*, and other noxious plants, till

till the ground is become perfectly clean; some cleansing crop, as potatoes, turnips, tares, &c. may contribute to this end.

By this means the ground we propose laying down will be got into excellent order, without much loss; and, being now ready to form into a meadow or pasture, should be sown, broad-cast, with the following composition:

Meadow Fox-Tail, one pint; *Meadow Fescue*, ditto; *Smooth-stalked Meadow*, half a pint; *Rough-Stalked Meadow*, ditto; *Crested Dogs-Tail*, a quarter of a pint; *Sweet-scented Vernal*, ditto; *Dutch Clover (Trifolium repens)*, half a pint; *Wild Red Clover (Trifolium Pratense)*, or, in its stead, *Broad Clover* of the shops, ditto. For wet land, the *Crested Dogs-Tail*, and *Smooth-stalked Meadow* may be omitted, especially the former.—*Vid. Observ. on Cynosurus crist.* and *Poa prat.*

Such a composition as this, sown in the proportion of about three bushels to an acre, on a suitable soil, in a favourable situation, will, I am bold to assert, form in two years a most excellent meadow; and, as all the plants sown are strong, hardy, perennials, they will not easily suffer their places to be usurped, by any noxious plants, which, by manure, or other means, in spite of all our endeavours, will be apt to insinuate themselves; if they should, they must be carefully extirpated, for such a meadow is de-

serving of the greatest attention; but, if that attention cannot be bestowed on it, or if, in process of time, weeds should predominate over the crop originally sown, the whole should be ploughed up, and fresh sown with the same sort of seeds, or with a better composition, when such shall be discovered; for I have no doubt, but, at some future time, it will be as common to sow a meadow with a composition, somewhat like this, as it now is to sow a field of wheat or barley.

If the object of the agriculturist be the improving of a meadow merely, not the laying it down, then, after eradicating as much as possible all noxious plants, let some old rotten dung be thinly spread over the meadow, in the beginning of September, at which time the worms * throw up great quantities of earth, which contributes greatly to prevent the growth of moss, as well as affords fresh soil for the roots of plants to shoot into, and for seeds to vegetate in; bush harrow it, and sow on it the same composition of seeds, but in a smaller quantity; if the meadow be very rich, the dung will be less necessary.

* The natural diggers and dungers of land, worm-casts being nothing more than the dung of the worm.

AN

ENUMERATION

OF THE

BRITISH GRASSES.

GENUS I.

AGROSTIS. BENT-GRASS *(a)*.

1 Spica venti. *L.* 110. *H.* 30. *R.* 405. *u.* 17. *Bearded.
2 Stricta *(b)*. - - - *Upright.
3 Fascicularis *(c)*. *Canina. L.? H. var. can. α* - - - *Tufted-Leaved.
4 Setacea. *H. var. can. γ Fl. Lond. Fasc.* 6. *Sheeps-Fescue-Leaved.

(a) I have experienced more difficulty in ascertaining the several species of this genus, than all the others put together; ten of them, now growing in my garden at Brompton, continue constant to their characters; the *minima* is no *Agrostis*, though here continued as such, but a distinct genus.

(b) We have changed the name of *rubra*, by which we have heretofore distinguished this species, for that of *stricta*, it being more perfectly upright than any of the other perennial species.

(c) Tenuifolia, ed. 2. Have changed this name for the more expressive one of *fascicularis*, the stalks, in autumn, producing leaves in bundles.—*Vid. Schreuchz. Specif. Descr.*

5 Alba *(d)*. *L.* 111. - - *White.
6 Palustris. - - - - *Marsh.
7 Capillaris *(e)*. *R.* 404. 10. *Huds. var. polymorp.* α - - - - *Fine-Panicled.
8 Repens *(f)*. *Dodon. Pempt. p.* 558. *Gramen.* - - - *Couchy.
9 Lobata *(g)*. - - - *Lobed.
10 Littoralis. - - - Sea-Side.
11 Minima. *L.* 111. *H.* 32. *R. Indic. Pl. dub.* - - *Least.

GENUS II.

AIRA. HAIR-GRASS.

1 Aquatica. *L.* 112. *H.* 33. *R.* 402. 3. *Fl. Lond.* - - - *Water.
2 Cæspitosa. *L.* 112. *H.* 34. *R.* 403. 5. *Turfy.
3 Flexuosa. *L.* 112. *H.* 34. *R.* 407. 8. *Heath.
4 Montana. *L.* 112. *H.* 35. - *Mountain.
5 Canescens. *L.* 112. *H.* 36. *R.* 405. 16. *Grey.

(d) We used to regard the *alba* and *palustris* as one and the same species, but we have lately found them to be very distinct; in the *alba*, the branches of the panicle, which is for the most part of a pale hue, close after blowing; in the *palustris*, they remain spread out:—the seed of *palustris* is twice the weight of that of *alba*.

(e) Frequently found awned.

(f) Like *capillaris*, but larger in every respect; root powerfully creeping; the common couch of the farmer.

(g) Finding this maritime species, noticed originally by us on the Devonshire coast, not confined to sandy soils, we have changed the name of *arenaria* for that of *lobata*, the panicle being more obviously divided into lobes, than in any of the other species: it comes very near to *alba*.

6 Præcox. *L.* 112. *H.* 36. *R.* 407. 10. *t.* 22. *f.* 2. *Fl. Lond.* - - - *Early.

7 Caryophyllea *(h)*. *L.* 112. *H.* 36. *R.* 407. 7. - - - *Silver.

GENUS III.

ALOPECURUS. FOX-TAIL GRASS.

1 Pratensis. *L.* 108. *H.* 27. *R.* 396. 1 *Fl. Lond.* - - - *Meadow.

2 Agrestis. *L.* 108. *H.* 27. *myosuroides, ed.* 1. *R.* 397. 1. *Fl. Lond. myosuroides.* - - *Field.

3 Geniculatus. *L.* 108. *H.* 27. *R.* 396. 2. *Fl. Lond.* - - - *Flote.

4 Bulbosus. *L.* 108. *H. var. Geniculatus β.* R. 397. 3. *t.* 20. *f.* 2. - *Bulbous.

5 Monspeliensis. *L.* 109. *H.* 28. *Alop. aristatus. R.* 396. 4. - - *Bearded.

GENUS IV.

ANTHOXANTHUM. VERNAL-GRASS.

1 Odoratum. *L.* 73. *H.* 11. *R.* 498. § *Fl. Lond.* - - *Sweet-Scented.

GENUS V.

ARUNDO. REED-GRASS.

1 Phragmitis. *L.* 123. *H.* 53. *R.* 401. 1. *Common.

2 Calamagrostis. *L.* 123. *H.* 54. *R.* 401. 2. *Wood.

(h) For what purpose could Mr. STILLINGFLEET give a figure of this insignificant annual?

3 Epigejos. *L.* 123.? *H.* 54. *R.* 401. 3. *Small
4 Arenaria. *L.* 123. *H.* 54. *R.* 393. 1. *Sea.

GENUS VI.

AVENA. OAT-GRASS.

1 Elatior. *L.* 121. *H.* 53. *R.* 406. 3, 4. *Fl. Lond.* - - - *Tall.
2 Pratensis. *L.* 122. *H.* 52. *R.* 405. *t.* 21. *f.* 1. - - - *Meadow.
3 *Pubescens.* *L.* 122. *H.* 52. *R.* 406. *t.* 21. *f.* 2. - - *Rough.
4 Flavescens. *L.* 122. *H.* 53. *R.* 407. 5. *Fl. Lond.* - - - *Yellow.
5 Nuda. *L.* 122. *H.* 52. *R.* 389. 6. *Naked.
6 Fatua. *L.* 122. *H.* 52. *R.* 389. 7. *Bearded.

GENUS VII.

BRIZA. QUAKING-GRASS.

1 Media. *L.* 115. *H.* 38. *R.* 412. 1. *Common.
2 Minor. *L.* 115. *H.* 38. *R.* 412. 2. *Small.

GENUS VIII.

BROMUS. BROME-GRASS.

1 Mollis. *L.* 119. *H.* 48. *polymorphus.* *R.* 413. 5. *Fl. Lond.* - - *Soft.
2 Secalinus. *L.* 119. *H.* 49. *polymorphus.* *var.* γ. *R.* 414. 8. - - *Lob.
3 Squarrosus. *L.* 119. *H.* 49. - *Corn.

4 Erectus.

4 Erectus. *H.* 49. R. 413. 2. - *Upright.
5 Diandrus. *H.* 50. *Fl. Lond.* - *Diandrous.
6 Sterilis. *L.* 120. *H.* 50. *R.* 412. 1. *Fl. Lond.* - - *Barren.
7 Giganteus. *L.* 120. *H.* 51. *R.* 415. 11. *Fl. Lond.* - - *Tall.
8 Hirsutus. *L.* 119. *asper. H.* 51. *nemoralis, R.* 415. 10. *Fl. Lond.* - *Hairy.
9 Arvensis *(i)*. *L.* 120. - - *Field.
10 Racemosus. *L.* 120. - - *Smooth.
11 Multiflorus *(k)*. *Weigel. Observ.* 2. *t.* 1. *f.* 1. - - - *Many-Flowered.
12 Coytæi *(l)*. - - - *Coytes.

GENUS IX.

CYNOSURUS. DOGS-TAIL-GRASS.

1 Cristatus. *L.* 116. *H.* 59. *R.* 398. 2. *Crested.
2 Echinatus. *L.* 116. *H.* 59. *R.* 397. 5. *Rough.
3 Cœruleus. *L.* 117. *H.* 59. *R.* 399. 4. *Blue.

(i) We have a grass growing in our garden, but which has not yet flowered, communicated to us by Mr. DICKSON, under this name.

(k) Found by us last summer in Battersea-Fields.

(l) Found wild in Wales, by my friend Dr. COYTE, of Ipswich, author of the Hortus Gippovicensis, who sent me seeds of it, which have for many years produced the same plant, without any variation, in my garden at Brompton. It is very nearly related to *Bromus mollis*, and might be mistaken for a dwarf variety of that plant; its spiculæ are much larger in proportion, and the groove in the middle of them much deeper, and more conspicuous.

GENUS

GENUS X.

DACTYLIS. COCK'S-FOOT-GRASS.

1 Glomerata. *L.* 116. *H.* 43. *R.* 400. 2. *Rough.
2 Maritima. *H.* 43. *Cynosuroides. R.* 393. 4. Sea

GENUS XI.

ELYMUS. LYME-GRASS.

1 Arenarius. *L.* 125. *H.* 56. *Sea.
2 Geniculatus. *Elbowed.
3 Caninus. *L.* 125. *H.* 58. *Triticum caninum. R.* 390. 2. *Dogs.

GENUS XII.

FESTUCA. FESCUE-GRASS.

1 Bromoides. *L.* 118. *H.* 46. *R.* 415. 13. *Barren.
2 Myurus *L.* 118. *H.* 46. *R.* 415. 12. *Wall.
3 Ovina. *L.* 118. *H.* 44. *R.* 410. 9. *Sheeps.
4 Nana. *Dwarf.
5 Glaucescens. *Glaucescent.
6 Glauca. *Glaucous.
7 Duriuscula. *L.* 118. *H.* 44. *R.* 413. 4. *t.* 19. *f.* 1. *Hard.
8 Cambrica. *H.* 45. *Welsh.
9 Decumbens. *L.* 119. *H.* 47. *R.* 408. 11. *Decumbent.
10 Pratensis. *H.* 47. *var. fluitans. γ. R.* 411. 16. *Fl. Lond.* *Meadow.
11 Elatior.

11 Elatior. *L.* 118. *H.* 47. *R.* 411. 14. *Fl. Lond.* - - - *Tall.

12 Loliacea. *H.* 47. *var. fluitans. var. β. Fl. Lond.* - - *Darnel.

13 Fluitans. *L.* 119. *H.* 46. *R.* 412. 17. *Fl. Lond.* - - - *Flote.

14 Pinnata. *H.* 48. *R.* 392. § - *Spiked.

15 Rubra. *L.* 118. *H.* 45. - Purple.

16 Glabra. *Lightfoot Fl. Scot. App. p.* 1085. - - - Smooth.

17 Uniglumis. *H.* 55. *Lolium bromoides. R.* 413. 3. *t.* 17. *f.* 2. - *Sea.

18 Sylvatica. *L.* 120. *Bromus pinnatus. H.* 48. *R.* 394. § - - *Wood.

GENUS XIII.

HORDEUM. BARLEY-GRASS.

1 Murinum. *L.* 126. *H.* 56. *R.* 391. 1. *Fl. Lond.* - - - *Wall.

2 Maritimum. *H.* 57. *Marinum. R.* 392. 3. *Sea.

3 Pratense. *H.* 56. *R.* 392. 3. - *Meadow.

4 Sylvaticum. *H.* 57. *L.* 125. *Elymus Europæus. R.* 392. 4. - - *Wood.

GENUS XIV.

HOLCUS. SOFT-GRASS.

1 Mollis. *L.* 905. *H.* 440. *R.* 404. 15. *Fl. Lond.* - - - *Creeping.

2 Lanatus. *L.* 905. *H.* 440. *R.* 404. 14. *Fl. Lond.* - - - *Meadow.

GENUS XV.

LOLIUM. DARNEL-GRASS.

1 Perenne. *L.* 124. *H.* 55. *R.* 395. 2. *Perennial or Ray-Grass.
2 Temulentum. *L.* 124. *H.* 55. *R.* 395. 1. *Annual.
3 Arvense *(m)*. - - - - *Field.

GENUS XVI.

MELICA. MELIC-GRASS.

1 Uniflora. *H.* 37. *nutans*. *R.* 403. 6. *Fl. Lond.* - - - *Single-Flowered.
2 Nutans. *L.* 112. *H.* 37. *montana*. *R.* 403. 7. *Fl. Lond.* - - *Mountain.
3 Cœrulea. *L.* 113. *H.* 33. *Aira cærulea*. *R.* 404. 8. *Fl. Lond.* - - *Blue.

GENUS XVII.

MILIUM. MILLET-GRASS.

1 Effusum. *L.* 109. *H.* 29. *R.* 402. 1. *Fl. Lond.* - - - *Wood.
2 Lendigerum. *L.* 109. *H.* 28. *Alopecurus ventricosus*. *R.* 394. 4. - *Corn.

(m) Received from Mr. DICKSON, who informs me that it is found wild in the corn-fields, in some parts of Scotland; it has the perfect habit of a *Lolium*, but is deficient in the character of that genus, the calyx being constantly *bivalve*.

GENUS

GENUS XVIII.

NARDUS. MAT-GRASS.

1 Stricta. *L.* 102. *H.* 22. *R.* 393. 2. *Small.

GENUS XIX.

PANICUM. PANIC-GRASS.

1 Viride. *L.* 105. *H.* 24. *R.* 399. 1. *Fl. Lond.* - - - - *Green.
2 Verticillatum. *L.* 105. *H.* 24. *R.* 394. 3. *Fl. Lond.* - - - *Whorled.
3 Crus-galli. *L.* 105. *H.* 24. *R.* 394. 2. *Fl. Lond.* - - *Loose.
4 Sanguinale. *L.* 106. *H.* 25. *R.* 399. 2. *Fl. Lond.* - - - *Cock's-Foot.
5 Dactylon. *L.* 106. *H.* 25. *R.* 399. 1. *Creeping.

GENUS XX.

POA. MEADOW-GRASS.

1 Aquatica. *L.* 113. *H.* 38. *R.* 411. 13. *Fl. Lond.* - - *Water or Reed.
2 Alpina. *L.* 113. *H.* 39. *var.* - - *Alpine.
3 Glauca. - - *Glaucous.
4 Trivialis. *L.* 113. *H.* 39. *R.* 409. 3. *Fl. Lond.* - - - *Rough-Stalked.
5 Pratensis. *L.* 113. *H.* 39. *R.* 409. 2. *Fl. Lond.* - - *Smooth-Stalked.
6 Nemoralis. *L.* 115. *H.* 40. *angustifolia.* - - - *Wood.

7 Compressa. *L.* 115. *H.* 41. *R.* 409. *Flat-Stalked.
8 Annua. *L.* 113. *H.* 42. *R.* 408. 1. *Dwarf.
9 Maritima. *H.* 42. *R.* 409. 6. - *Sea.
10 Retroflexa, *L.* 115. *distans? H.* 34. *var. Aira aquat.* - - *Reflexed.
11 Rigida. *L.* 114. *H.* 42. *R.* 410. 8. *Fl. Lond.* - - - *Hard.
12 Cristata. *L.* 115. *H. Aira cristata.* 33. *R.* 396. 3. - - *Crested.
13 Loliacea. *H.* 43. *R.* 395. 4. - *Darnel.
14 Procumbens. *Fl. Lond.* - - *Procumbent.
15 Angustifolia. *Linn. p.* 113. - *Narrow-Leaved.
16 Elatior *(n).* - - *Tall.
17 Tenuiflora *(o).* - - - *Slender-Flowered.

GENUS XXI.

PHLEUM. CATS-TAIL-GRASS.

1 Arenarium. *L.* 108. *H.* 23. *Phalaris arenaria. R.* 398. 4. - - *Sea.
2 Pratense. *L.* 107. *H.* 25. *R.* 398. 1. *Meadow.
3 Nodosum. *L.* 108. *H. var. pratens.* *Bulbous.
4 Alpinum. *L.* 108. - - *Alpine.
5 Paniculatum. *H.* 26. - - *Branched.

GENUS XXII.

PHALARIS. CANARY-GRASS.

1 Phleoides. *L.* 104. - - *Cats-Tail.
2 Canariensis. *L.* 103. *H.* 23 - *Birds.
3 Arundinacea. *L.* 104. *H.* 23. *R.* 401. 1. *Reed.

(n) From Scotland.

(o) Found by us last summer in Battersea-Fields: like *Nemoralis*, but distinct.

GENUS

GENUS XXIII.

ROTBOELLIA. HARD-GRASS.

1 Incurvata. *L.* 124. *H.* 441. *Ægilops incurva. R.* 395. 3. - - *Sea.

GENUS XXIV.

STIPA. FEATHER-GRASS.

1 Pennata. *L.* 121. *H.* 29. *R.* 393. 3. *Long-Awned.

GENUS XXV.

TRITICUM. WHEAT-GRASS.

1 Junceum. *L.* 127. *H.* 58. *R.* 391. 4. *Rushy.
2 Repens. *L.* 127. *H.* 57. *R.* 390. - *Creeping or Couchy.

All those grasses which have an asterisk before their English names, in number one hundred and fifteen, are at present growing in my Botanic Garden, *Brompton*.—*L.* refers to the 14th Edition of the *Systema Vegetabilium* of LINNÆUS, published by Professor MURRAY, *Gottingæ*, 1784. —*H.* refers to the 2d Edition of Mr. HUDSON'S *Flora Anglica*.—*R.* to the 3d Edition of Mr. RAY'S *Synopsis*.—And *Fl. Lond.* to the *Flora Londinensis*, in which the grasses so referred to, are figured of their natural size.

In

In this Catalogue there are twenty-eight more species enumerated than in STILLINGFLEET, and thirty-one more than in the last edition of Mr. HUDSON's *Flora Anglica*; we have little doubt but some of these will prove varieties, as Aira 4, Festuca 12, and Poa 7: and some have perhaps no right to appear in a British list, as Avena 5, and Phalaris 2.

We are far from considering this Catalogue as complete; but, if it has no other use, it may excite others to make it so: though the word complete can but seldom be applied with propriety to any part of Natural History, as new subjects are perpetually discovered, which often make it necessary, not only to add to, but to alter, names and descriptions that have been long established.

BOTANIC GARDEN,
Brompton, 1798.

APPENDIX.

APPENDIX.

IF we examine our meadows, pastures, and downs, we shall find them pretty much in a state of nature, and, excepting those pastures which of later years have been sown with Ray-grass and Clover, full of an indiscriminate mixture of plants, some of which afford good, others bad food; some good crops, others scarcely any crops at all: that I may not be thought to speak at random on this subject, I shall here mention a few facts to corroborate what I have asserted.

My very worthy and much esteemed friend, THOMAS WHITE, Esq. with a view to ascertain the produce of several downs and commons, fed on by sheep, procured from each of those undermentioned, in Hampshire and Sussex, a turf, which, though not more than six inches in diameter, and chosen indiscriminately, produced, on being planted in my garden, as follows:

TURF FROM SELBORN-COMMON.

Plantago lanceolata.
Agrostis capillaris.

Avena

Avena flavescens.
Dactylis glomerata.
Festuca duriuscula.
Poa annua.
Cynosurus cristatus.
Trifolium repens.
Crepis tectorum.
Achillea millefolium.
Galium verum.
Hypochæris radicata.
Hieracium pilosella.
Thymus Serpyllum.

TURF FROM OAKHANGER.

Trifolium repens.
Holcus lanatus.
Poa annua.
Agrostis capillaris.
Agrostis palustris.

TURF FROM DEORTUN.

Ranunculus repens.
Lolium perenne.
Holcus lanatus.
Prunella vulgaris.
Festuca duriuscula.
Agrostis palustris.
Trifolium repens.

Crepis

Crepis tectorum.
Achillea millefolium.

TURF FROM GLYND-HILL.

Medicago lupulina.
Achillea Millefolium.
Poa pratensis.

TURF FROM THE SAME.

Avena flavescens.
Festuca duriuscula.
Festuca ovina.
Hieracium pilosella.
Agrostis capillaris.
Trifolium repens.
Thymus serpyllum.

TURF FROM SHORT HEATH.

Festuca bromoides.
Aira præcox.
Juncus campestris.
Poa annua.
Agrostis capillaris.

TURF FROM MOUNT CABRON.

Rumex Acetosa.
Daucus Carota.

Medicago lupulina.
Potetium sanguisorba.
Festuca duriuscula.
Avena flavescens.

TURF FROM RINGMER-DOWN.

Linum catharticum.
Scabiosa columbaria.
Ornithopus perpusillus.
Avena flavescens.
Festuca duriuscula.
Trifolium repens.
Hypochæris radicata.
Crepis tectorum.
Lotus corniculatus.
Juncus campestris.
Hieracium pilosella.
Festuca ovina.
Thymus serpyllum.
Poa pratensis.

Flor. Lond.

It is, perhaps, no small recommendation to the *Poa trivialis*, that it is a principal grass in that uncommonly productive meadow near Salisbury, mentioned by STILLINGFLEET, and more particularly described in the Memoirs of the Bath Agricultural Society, *vol.* 1, *p.* 94.

The

The account given of the extraordinary fertility of this meadow excited our curiosity, and induced us to request a gentleman, residing near the spot, to favour us with six small turfs, cut up in different parts of the said meadow, and which, being planted in our garden, Lambeth-Marsh, produced as follows:

TURF 1.

Poa trivialis.
Ranunculus acris.
Triticum repens.
Agrostis paluſtris.

TURF 2.

Poa trivialis.
Alopecurus pratensis.
Triticum repens.

TURF 3.

Poa trivialis.
Agrostis palustris.

TURF 4.

Poa trivialis.
Triticum repens.
Peucedanum Silaus.

TURF 5.

Poa trivialis.
Alopecurus pratensis.
Agrostis palustris.
Avena elatior.
Triticum repens.

This experiment proves, in a great degree at least, what we long before suspected, that the extraordinary fertility of this meadow arose not from any new grass peculiar to it, but from several unusual circumstances concurring and favouring, in an uncommon degree, the growth of certain well-known grasses; especially the *Poa trivialis* and *Agrostis palustris*.

HINTS

HINTS

RELATIVE TO THE

IMPROVEMENT OF MEADOWS.

IT appears to us that, in the herbage of a good meadow, there must be a combination of

Produce,
Bateableness, and
Early Growth.

PRODUCE.

This, in most cases, is the Agriculturist's grand object—and no wonder, since it is the quantity chiefly which enables him to pay his rent, and support his cattle; to obtain this, the judicious husbandman spares no expence in labour or manure; but it does not follow, that produce is to be attended to solely, or that, for its sake, we are to cultivate *Rough Cock's-Foot-Grass, Meadow-Sweet,* and such coarse plants.

Grasses, which have been recommended for being remarkably grateful to cattle, as the *Sheeps Fescue-Grass,* or for the sweetness of their foliage merely, if they are found to be deficient in the grand

grand article of produce, will never answer the farmer or grazier's purpose, since to be a good meadow it must be productive.

Cattle, in regard to food, doubtless have their particular likings*, in which it may be necessary sometimes to indulge them: but this practice must not be carried too far; for, as the farmer cannot afford to feed his ploughmen on pigs and poultry, neither can he indulge his cattle, in general, with the finer or more delicate hay or herbage. By the bye, we do not know but that the most productive grasses may also be the most nutritious, or that cattle will not as eagerly eat the herbage or hay made of the *Meadow Fox-Tail-Grass*, as of the *fine Bent (Agrostis capillaris)*, and *procumbent Trefoil (Trifolium procumbens)*.—Moreover, cattle are known frequently to thrive

* How inadequate we are to judge of the likings of animals, the following fact may serve to shew:—my garden at Brompton was, in the spring of 1789, infested by one or more hares, for several months, who did considerable damage to many of my plants; but the one by which their depredations were first discovered, was the *Juncus niveus*, the blossoms and flowering stems of which they cropped, and neglecting or slightly touching a vast number of other plants, even the *Agrostis Cornucopiæ* of Walter's *Flor. Carol.* to which animals have been reported to be much attached, and another sweeter grass, both growing just by, nightly resorted to, and ate the *Juncus* to the very ground.—Of the British grasses, the hare has preferred the *Poa procumbens*.

on

on food to which they are habituated by necessity, though at first they could scarcely be prevailed on to touch it.

Persons, in making experiments, are very apt to conclude too hastily from the appearance which a plant assumes on its being first planted or sown; the most insignificant vegetable will often make a great shew, when its fibres have fresh earth to shoot into; but the trial comes, when the object of our experiment has been in a meadow or pasture several years, when its fibres, from long growth, are matted together, and it meets with powerful neighbours, to dispute every inch of ground with it; if it then continues to be productive, it must have merit. We see that *Lucern*, when left to itself, is soon overpowered; if we sow *Broad leaved Clover*, which is most undoubtedly a perennial, the first year we shall have a great crop of *Clover*; let this field be left to itself, and the *Clover*, like the *Lucern*, will yearly diminish, not because it is a biennial, as some have supposed, but because plants, hardier or more congenial to the soil, usurp its place: this shews, then, that at the same time that we introduce a good plant, that plant must also be a powerful one, able to keep possession, and continue to be productive.

BATE-

BATEABLENESS.

The word bateable is altogether agricultural, perhaps provincial, and used to express cattle's thriving on the food they eat.

This is, undoubtedly, of great consequence, and it is to be regretted, that our knowledge of bateable herbage is so limited; of those plants which have been cultivated, we are able to speak with some certainty; it is well known that *Clover*, *Lucern*, *Saintfoin*, *Tares*, and several other plants, have a tendency to fatten cattle; but what grasses, or other plants, which have not been subjected to a separate cultivation, have this particular tendency, remains to be ascertained by experiment.

As leguminous plants, in general, are found to agree with cattle, we may reasonably conclude that a certain quantity of them must be proper in pastures.

Certain pastures are found to be more bateable than others; but whether this arises from situation, or their particular produce, remains also to be discovered.

We should be thankful to any nobleman or gentleman, for turfs cut up in pastures, remarkable for this quality, or the contrary, that we might ascertain their produce at least.

EARLY GROWTH.

The farmers and graziers of this country unitedly complain of the want of early herbage in the spring: those plants, therefore, which are found to put forth early foliage, and to be grateful to the cattle, are deserving of great attention: as far as grasses are concerned, the *Sweet-scented Vernal*, the *Meadow Fox-Tail*, the *Smooth*, and *Rough-Stalked Meadow-Grass*, will effect all that can be expected from those of British growth; much, very much, however, will depend on seasons; if the winter be very severe, or north-easterly winds prevail in the spring, grassy herbage will be backward: to counteract the bad effects of such seasons, our pastures should be warmly situated, not drenched with moisture, sheltered by thick hedges, and divided into small enclosures; in short, a set of enclosures should be formed for this very purpose, where there is a prospect of its answering.

Where early pasturage is the desideratum, other plants, as well as grasses, may deserve a place amongst them, as *Rib-wort*, or *Rib Grass (Plantago lanceolata)*, *Dandelion (Leontodon Taraxacum)*, *Broad-leaved Clover (Trifolium pratense)*, with many others.

As early herbage is valuable for pasturage, it

is no less so for hay; by the middle of May at furthest, a meadow of this sort would be fit for mowing, and the second hay-making might commence by the time that hay-making usually takes place in the country.

We have sometimes thought, but, perhaps, the idea is too speculative, that we ought to have two sorts of meadows—one for hay, the other for pasture; that our hay meadows should consist entirely of grasses, and chiefly for this reason, that the hay would, on that account, be much sooner made an object of consequence at all times, but more so when the process commences in May; in June and July the more powerful heat of the sun is able to exsiccate the thick leaves and stalks of the more succulent plants; but in the necessary prolongation of this business, the grasses must materially suffer.

FINIS.

CLYATT, PRINTER,
Grove House, Lower Marsh, Lambeth.

THE

PACKET

OF

GRASS SEEDS,

RECOMMENDED

IN THIS PAMPHLET,

MAY BE HAD

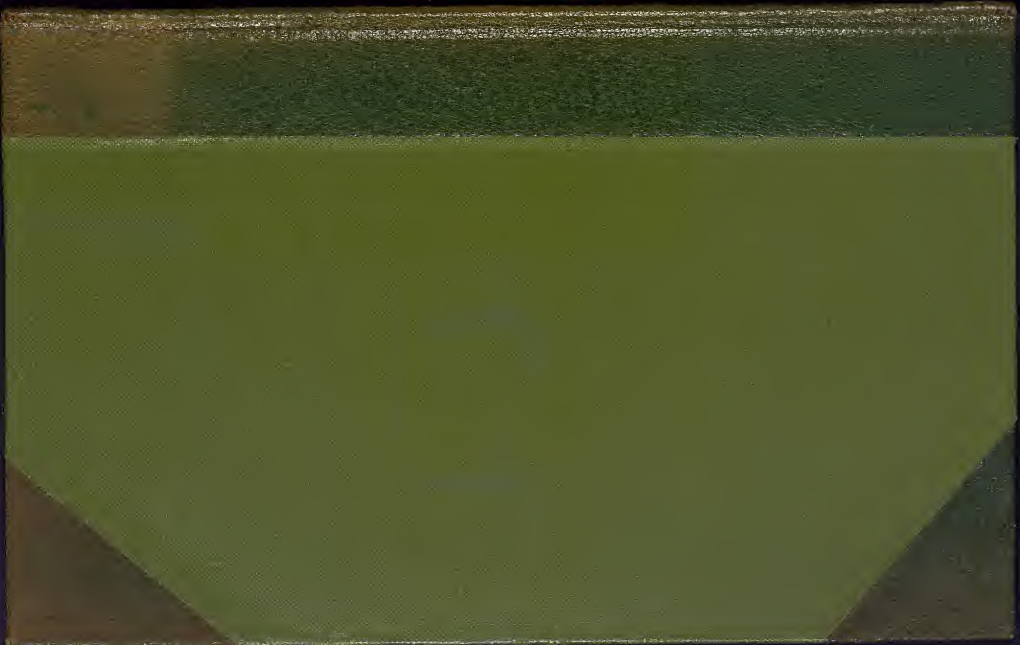
WHERE THE PAMPHLET IS PUBLISHED,

AND AT THE

[redacted]

PRICE TEN SHILLINGS AND SIXPENCE.

J. Curtis
Walworth



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